

54. (Twice Amended) The composition of claim 50, which neural stem cells can proliferate in an EGF-independent manner.

Clean version of all pending claims

32. The composition of claim 49, wherein said peripheral tissue comprises olfactory epithelium.

33. The composition of claim 49, wherein said peripheral tissue comprises tongue.

41. The composition of any of the claims 49-52, wherein said neural stem cells are transfected with a heterologous gene.

42. The composition of claim 41, wherein said gene encodes a trophic factor.

49. An isolated composition of neural stem cells of a mammal, said stem cells produced by a method comprising the steps of:

(a) providing a culture of peripheral tissue containing sensory receptors from said mammal;

(b) isolating neural stem cells from said peripheral tissue, based on the tendency of said neural stem cells to aggregate and form non-adherent clusters in culture, wherein said neural stem cells express nestin, are self renewing, are capable of producing neurons and glia, and can differentiate into dopaminergic neurons.

50. An isolated composition comprising a purified population of mammalian neural stem cells, which neural stem cells form non-adherent clusters in culture, are self renewing, express nestin and glutamic acid decarboxylase (GAD), and can differentiate into cell types of the central nervous system.

51. An isolated composition comprising a purified population of mammalian neural stem cells, which neural stem cells form non-adherent clusters in culture, are self renewing, express nestin, and can differentiate into dopaminergic neurons.

52. An isolated composition comprising a purified population of mammalian neural stem cells, which neural stem cells form non-adherent clusters in culture, are self renewing, proliferate in an EGF-independent manner, and can differentiate into cell types of the central nervous system.

54. The composition of claim 50, which neural stem cells can proliferate in an EGF-independent manner.

55. The composition of claim 54, which neural stem cells differentiate, in the presence of serum, into neurons expressing tyrosine hydroxylase.

56. The composition of any of the claims 49-54, which neural stem cells differentiate into cells expressing at least one marker selected from the group consisting of Glial Fibrillary Acid Protein (GFAP), neurofilament 160, β III tubulin, NeuN, galactocerebroside, tyrosine hydroxylase, and dopamine β -dehydrogenase.

57. The composition of any of the claims 49-54, which neural stem cells differentiate, in the presence of serum, into dopaminergic cells.

58. The composition of any of the claims 49-54, which neural stem cells are human stem cells.